MR. W. S. WARD, of the United States Executive, is now on a visit to England to make himself acquainted with the principles and construction of the most important public aquaria in this country with reference to the establishment of similar institutions on an extensive scale in New York, and other leading American cities.

PROF. H. G. SEELEY has been appointed to the Professorship of Geography in King's College, London.

THE Dutch Society of Sciences, Haarlem, has awarded the Boerhaave Medal to Prof. W. Hofmeister, Professor of Botany in the University of Lübingen.

WE are doing a good deal, says the *Gardeners' Chronicle*, to bring scientific literature within the reach of the people, but our French neighbours are certainly ahead of us in this respect. This conviction is forced upon us by the recent purchase of a Manual of Botany of sixty-two pages for the sum of 10 centimes —a penny in English money! This closely printed little work, by one M. Anciaux, forms one of a series of similar *brochures* which is issued by M. Ad. Rion under the title of "Les Bons Livres." It contains chapters on vegetable anatomy and physiology, on botanical geography, classification, and taxonomy, and is certainly a marvel of cheapness.

M. CEZANNE, the young and promising member of the French Chamber of Deputies for Hautes-Alpes has died of consumption. M. Cezanne, the author of a valuable work on the physical phenomena presented by waterfalls on mountains, was the founder and president of the French Alpine Club. His loss will be so much more heavily felt that the French Minister of Public Instruction is at present making great efforts to popularise the new institution. An official circular, published almost on the very day when M. Cezanne died, recommends the heads of the several government schools in France to organise tourists' expeditions during hot days for exploring the Alps and Pyrenees. Railway companies are to issue special tickets at exceedingly moderate rates.

THE Prefect of the Seine Department has created a fund of 11,000 francs for sending to Dieppe, the seaport nearest to Paris, a number of pupils of the municipal free schools. Fifty will be selected from each school, and are to be chosen according to their merits. These tourist-laureates are to be boarded in the Dieppe College, visit surrounding places, and receive instruction in the natural curiosities or historical facts connected with the localities.

WE observe from the *Bulletin Mensuel* of the Observatory of Montsouris for May that the Administration of Paris on April 11 last decided that meteorological observations be made with special reference to health in different parts of the city, and voted an annual grant of 12,000 francs to the Observatory, to which the inquiry has been entrusted. It has been resolved that the work shall embrace, in addition to the meteorological observations usually made, atmospheric electricity, and variations in the composition of the air (see ante, p. 156). In the meantime observations and experiments are being conducted at Montsouris with the view of arriving at simple practical methods of observing with scientific precision the different variable elements contained in the air, before extending the observations to the different quarters of the city. This number of the *Bulletin* details some very interesting results of elaborate observations made on the ozone, carbonic acid, and organic matters of the air of Paris, illustrated with figures of some of the more interesting organisms.

THE interesting address by the senior vice-president, Mr. J. Thackray Bunce, at the last annual meeting of the members of the Birmingham Midland Institute, has been printed in a separate form. Mr. Bunce contrasts the condition of Birmingham with regard to education twenty-three years ago, when the Institute was founded, with its condition now. The contrast is very great indeed, and the Institute has no doubt done much to dispel the darkness in the midst of which it started. Mr. Bunce sketches the progress of the Institute, which is now in a most flourishing condition, and rightly urges the members to renewed efforts to make it increasingly useful.

THE following additions have been made to the Royal Aquarium, Westminster, during the past week:—Picked Dogfish (*Acanthias vulgaris*); Bass (*Labrax lupus*); Streaked Gurnards (*Trigla lineata*); Sapphirine Gurnards (*Trigla hirundo*); Turbot (*Rhombus maximus*); Greater Pipefish (*Syngnathus acus*); Cornish Suckers (*Lepidogaster cornubiensis*); White Bream (*Abramis blicca*); Pope or Ruff (*Acerina vulgaris*); Zoophytes (*Alcyonium digitatum*).

THE additions to the Zoological Society's Gardens during the past week include a Great-headed Maleo (*Megacephalon maleo*), from Celebes; a Bornean Fireback Pheasant (*Euplocamus nobilis*); two Common Crowned Pigeons (*Goura coronata*), from New Guinea; two Black-backed Geese (*Sarcidiornis melanota*), from India (?); a Saddle-billed Stork (*Xenorhynchus senegalensis*), from West Africa, purchased.

SOCIETIES AND ACADEMIES

LONDON

Anthropological Institute, June 13.—Col. A. Lane Fox, F.R.S., president, in the chair.—Prof. Busk, F.R.S., described a collection of crania of natives of the New Hebrides, some of which had been sent to the president by Mrs. Goodenough, and others to the Royal College of Surgeons, by Dr. Corrie, R.N. Seven were from the Island of Mallicollo and three from that of Vanikoro. With respect to the former, he remarked that they were of special interest as being the first, so far as he was aware, that had ever been brought to Europe from that locality, and also from their extraordinary form, due to the artificial depression of the forehead, a mode of deformation not hitherto recorded among the Melanesian race of New Guinea and the South Sea. The peculiar form of the head among the Mallicollese was noticed by Captain Cook and the two Forsters on the occasion of the discovery of the Island in 1774. The skulls from Vanikoro, on the other hand, represented the normal form of the cranium in people of the same race.—A paper by Mr. Ranken on the South Sea Islanders, was read by Mr. Brabrook. The author proposed that the name Mahori should be adopted to distinguish the light races of the Pacific from the Papuans or blacks. He adduced evidence to show that the latter first occupied a considerable number of the islands, and that the lighter race arrived subsequently from the west and formed a settlement in Samoa, whence it is now well established, that they spread in all directions, and, in some instances, mingled with the Papuans. He mentioned several points in which the Mahoris differ essentially from the Malays, who, however, appear to be a cognate race.—A short account of a visit paid to New Guinea, by M. d'Albertis, was communicated by Mr. Franks.—Mr. Distant described some photographs of natives of the Nicobar Islands.

Geologists' Association, June 2.—Mr. Wm. Carruthers, F.R.S., in the chair.—Notes on the geology of Lewisham, by Mr. H. J. Johnston Travis, F.G.S. The author, after briefly alluding to that portion of the Upper Chalk which is exhibited in the excavations, proceeded to describe the Thanet Sands, and to compare this section with the neighbouring one at Charlton, where, in the Thanet Sands, casts of *Cyprina* and the vertebra of fish have recently been discovered. Referring to the well-known green-coated flints about which there has been so much controversy, he mentioned a circumstance which may be noted at the fault near St. John's Station, Lewisham. The Chalk and Thanet Sands are there faulted against each other at an angle of 40°, but the actual line of contact is now occupied by a band of flint. This shows that the chalk has been dissolved away by acidulous waters, following the fissure down to this band of flint, which has resisted further action. Portions of the same flint, where yet imbedded in the chalk, retain the usual white surface, whilst those portions projecting into the sands are green-coated. The author then instituted a close comparison between the Woolwich and Reading beds of the Lewisham and Charlton sections respectively.

© 1876 Nature Publishing Group

Victoria (Philosophical) Institute, July 3.—A paper on the unseen universe, was read by the Rev. Dr. Irons.

Berlin

German Chemical Society, June 12.—A. W. Hofmann, president, in the chair.—F. Sonnenschein spoke on two active principles of gelsonia sempervirens; one called gelsinic acid by Wormsley proved to be æsculine; the other, a strong but amorphous base, of which no compound seems to crystallise excepting perhaps the platinum-salt, acts like strychnine and digitaline and gives a red colour with sulphate of sesquioxide of cerium.—A. Müller reported on the ground water of Gennevilliers, the irrigation-ground of Paris, his analyses yielding less favourable results than those published in the reports of the Paris Commission. The President remarked upon the difficulty of drawing conclusions from isolated analyses, a continuation of systematical researches being absolutely necessary for the purpose.—C. J. Austen described a new dibromo-dinitro-benzol fusing at 99°. With ammonia it yields monobromo-dinitraniline. With aniline a corresponding compound originates, which yields a nitro-product capable of uniting with alkalies.—Emil Fischer and Otto Fischer have made new researches on the di-azo compounds of rosaniline, of leukaniline and of hydrocyano-rosaniline. The di-azoleukaniline yielded, with sodium, a hydrocarbon, $C_{20}H_{18}$ (corresponding to leukaniline, $C_{20}H_{15}[NH_2]_3$) fusing at 58°, distilling above 300°, and yielding, with chromic acid, a ketone, $C_{20}H_{16}O$.—Emil Fischer has combined phenyl-hydrazine, $C_6H_5N_2H_3$, with CS_2, forming $(C_6H_5N_2H_3)_2CS_2$. This body dissolves in potash, and from the solution sulphuric acid precipitates an acid, phenyl-sulpho-carbazinic acid, $C_6H_5N_2H_2.CS.SH$, while one molecule of phenyl-hydrazine is split off. This acid is easily decomposed by heat, yielding hard and colourless prisms $(C_6H_5N_2H_2)_2CS$, diphenyl-sulphocarbazid; alkali changes it into a black colouring matter, isomeric with the above and soluble in alkali with a red colour. Phenyl-hydrazine and bromide of ethyl yield a new crystalline substance,

$$C_6H_5N_2H_2(C_2H_5)(C_2H_5Br),$$

bromide of phenyl-diethyl-hydrazonium. With oil of bitter almonds phenyl-hydrazine forms crystals of the composition $C_6H_5.N_2H.CH.C_6H_5$. Isocyanate of ethyl and phenyl-hydrazine form a urea of the composition $C_6H_5N_2H_2 - CO - NHC_2H_5$. With acetic anhydride and with oxalic ether, phenylhydrazine yields products in which one atom of hydrogen is replaced by acid radicals. At last the higher homologue, toluyl-hydrazine, has been prepared, $C_7H_7N_2H_3$ in the manner formerly described for preparing phenylhydrazine.—H. Vohl claims priority for a test for sulphur in organic compounds lately described by Weith.—B. W. Gerland described several sulphates of tetroxyde of vanadium as well as metavanadic acid.—H. Grünzweig and R. Hofmann defended the existence of crystallised ultramarine against some doubts lately expressed by Büchner.—H. Landolt published elaborate researches on the specific deviation of the plane of polarisation of solutions, from which he concludes that indifferent solvents affect the values observed very considerably, so that concentrated solutions only can furnish results of any approach to exactness.—E. A. Grete described a volumetric method of determining sulphuret of carbon, xanthogenic acid, alkalies, and copper, depending on the formation of insoluble xanthogenate of copper.—V. Meyer and F. Spitzer have transformed the product of the action of PCl_5 on camphor; $C_{10}H_{15}Cl$ into crystallised ethyl-terpene, $C_{10}H_{15}—C_2H_5$.

Paris

Academy of Sciences, June 26.—Vice-Admiral Paris in the chair.—The following papers were read:—Geometric points and envelope curves satisfying the conditions of constant product of two variable segments; generalisation of some theorems expressed in radii vectors, by M. Chasles.—Note on the development of cos. mx and sin. mx, according to powers of sin. x, by M. Yvon Villarceau.—On the maximum of possible repulsive force of the solar rays, by M. Hirn. Taking (from experiment) 0·293833 cal. to represent the heating per square metre on the earth's surface, the two pressures 0·0004157 gr. and 0·0008314 gr. are necessarily the greatest possible for a perfectly absorbing and a perfectly reflecting surface; on any hypothesis attributing phenomena of light and heat to movements of ponderable matter. If, then, a radiometric or other experiment give, for solar repulsion, a value superior to those now specified, we must conclude against a direct impulsion by light, and the idea of mass, density, &c., in light. Now Mr. Crookes has estimated the apparent repulsion at 1 gr. per sq. metre, or more than a thousand times superior to the above maximum for reflecting bodies.—New experimental considerations on Mr. Crookes's radiometer, by M. Ledieu. This refers chiefly to experiments by M. Bertin, who has a paper on the subject in the June number of *Annales de Chimie et de Physique*.—Properties common to canals, rivers, and water-pipes with uniform *régime* (first part), by M. Boileau.—M. de Saporta was elected correspondent for the Section of Botany, in room of the late M. Thuret; MM. Godron and Duval Jouve were the other candidates.—Report on a memoir of M. Felix Lucas, entitled "Calorific Vibrations of Homogeneous Bodies." The chief object proposed is to deduce from thermodynamics the principles of conductivity of heat in homogeneous bodies, enunciated by Fourier, considering heat as the result of molecular vibrations.—Exposition of a new method for resolution of numerical equations of all degrees (third part), by M. Lalanne.—On a differential radiometer, by M. de Fonvielle.—Process for the manufacture of soda from wrack by endosmotic steeping in lye, by M. Herland.—On the catastrophe of Grand Sable (district of Salazie), Isle of Réunion, by M. Vinson. The renewal of subterranean commotions in May points to volcanic action as the cause of the catastrophe.—Elements and ephemerides of planet 153, Atala, by M. Bossert.—On linear differential equations of the second order, by M. Fuchs.—On the contact of surfaces of an implex with an algebraic surface, by M. Fouret.—On some experiments made with Crookes's balance, by M. Salet.—On some derivatives of normal pyrotartaric acid, by M. Reboul.—Volumetric determination of formic acid, by MM. Portes and Ruyssen.—On the arragonite observed on the surface of a meteorite, by Mr. J. Lawrence Smith. It was in the form of white incrustation, on meteoric masses found in the desert of Mexico. The matter seems to have been incrusted on the iron after fall of the latter. The mass lay in a valley between high mountains of calcareous formation, and would often be washed and covered with water during heavy rains.—On the combinations of carbons found in meteorites, by Mr. J. Lawrence Smith.—On the employment of chloride of calcium in the watering of streets, promenades, and public gardens, by M. Houzeau. At Rouen, this waste product of the manufactories of pyroligneous acid has been utilised in the way referred to, and with the best results. It impregnates the soil with hygrometric matter which makes durable for a week the moisture imparted. It is healthy, always containing a good deal of chloride of iron and tarry matters; and compared with water, it realises an economy of about thirty per cent. Further, it improves streets and roads by covering them with a sort of patina or hard superficial crust, resisting both desiccation and disaggregation.—Study on the formation and growth of some galls, by M. Prillieux.—Experimental researches on the action of aniline, introduced into the blood, and into the stomach, by MM. Feltz and Ritter. This inquiry was suggested by an analysis of wines sold at Nancy, which showed that fuchsine is largely employed to heighten the colour of wine, and to mark the addition of water. Its injurious action is shown on man and on dogs.—Researches on *Cypressus pyramidalis*, by M. Hartsen.—Process of registration and reproduction of colours, of forms, and of movements, by M. Cros.

CONTENTS

Page
The University of Manchester, I. 225
Galileo and the Roman Court. By Sedley Taylor 226
Margary's Journals and Letters 229
Our Book Shelf:—
  Evans's "Through Bosnia and the Herzegóvina" 230
Letters to the Editor:—
  Firths, Dales, and Lakes, Valleys and Cañons.—J. C. 230
  The Loan Scientific Collection at South Kensington.—William Gee 231
  Evolution of Oxygen by "Vallisneria Spiralis."—Walter J. Stanton 231
  Stamens of Kalmia.—C. G. O'Brien 231
  Optical Pheaomenon.—Joseph John Murphy 231
  The Cuckoo.—Henry St. John Joyner 231
Our Astronomical Column:—
  Short's Observation of a supposed Satellite of Venus 231
  γ Argus 232
The Norwegian-Atlantic Expedition 232
The Kinematics of Machinery, II. (*With Illustrations*) 233
Perigenesis *v.* Pangenesis—Haeckel's New Theory of Heredity. By Prof. E. Ray Lankester, F.R.S. 235
Dinner to the "Challenger" Staff 238
Photographic Processes. By Capt. Abney, R.E., F.R.S. 239
Notes 241
Societies and Academies 243

© 1876 Nature Publishing Group